

Sexual Maturation [puberty]

①

I - Terminology:

• puberty → period of which the Reproductive organs Starts Their function

• Adolescence → Period That extends from puberty till Complete Maturity
- it include 3 items:

Adrenarche

- rise in the adrenal androgens
- occur about 1-2 yrs Before the rise in gonadotropins and gonadal androgens

Gonarche

- The onset of Testicular growth
- occur about 1-2 yrs Before pubarche

Pubarche

- the onset of pubic hair growth

* The usual age of the above mentioned changes is:-
9-14 yrs

II - Mechanisms of puberty

A Levels of pubertal Maturation:-

Hypothalamus

- Begins to secrete gonadotropin releasing Hormones GnRH in pulses During Sleep and eventually During Waking

Pituitary

- under the effect of GnRH
- Start to secrete pulses of the LH & FSH

Testis

- under the effects of LH, FSH.
- Starts growth and secretion of gonadal androgens

↓
Promote the Development of Spermatogenesis + 2ry sex organs

Amylee

B Theories of the onset of pubertal maturation :-

↳ a Hypothalamic mechanisms: (gonadostat)

- Normally → gonadostat :- means that the Hypothalamus is Sensitive to -ve feedback inhibition of The Low levels of gonadal Hormones Since Birth.
- accordingly → The hypothalamus Doesn't produce its (GnRH).

- Puberty may be explained By :- Readjusting of this gonadostat By :- ↓↓ hypothalamic Sensitivity and Release of the hypothalamus From the inhibitory effects of gonadal Hormones with subsequent Production of (GnRH)

↳ b Extrahypothalamic Mechanisms:

- There may be other extrahypothalamic Centers in the Brain

That initiate the onset of puberty

C Gonadal mechanisms:-

- ↑↑ Sensitivity of The testis to the Circulating gonadotrophins at the onset of puberty.

III - Changes of puberty

A Clinical changes:-

↳ a - Genital stages :-

- Stage I :- prepubertal, testicular length < 2.5 cm
- Stage II :- First testicular enlargement > 2.5 cm in length
 - Scrotal reddening
- Stage III :- first penile enlargement
Further growth of Testis
- Stage IV :- Further growth of Testis and penis
Darkening of Scrotal skin
- Stage V :- Adult Genitalia

→ B - Pubic Hair Stages :-

Stage I :- prepubertal - No pubic hair
Stage II :- sparse growth at the base of the penis

Stage III :- Darker, Coarser, Curled hair → spread to mons pubis.

Stage IV :- Adult type of hair But doesn't spread to the medial sides of the thigh

Stage V :- Adult type of hair that spreads to the medial thighs.

Stage VI :- Adult type of hair that spreads to the linea alba.
- occur in males only

→ C - Physical growth :-

puberty → genital growth and maturation

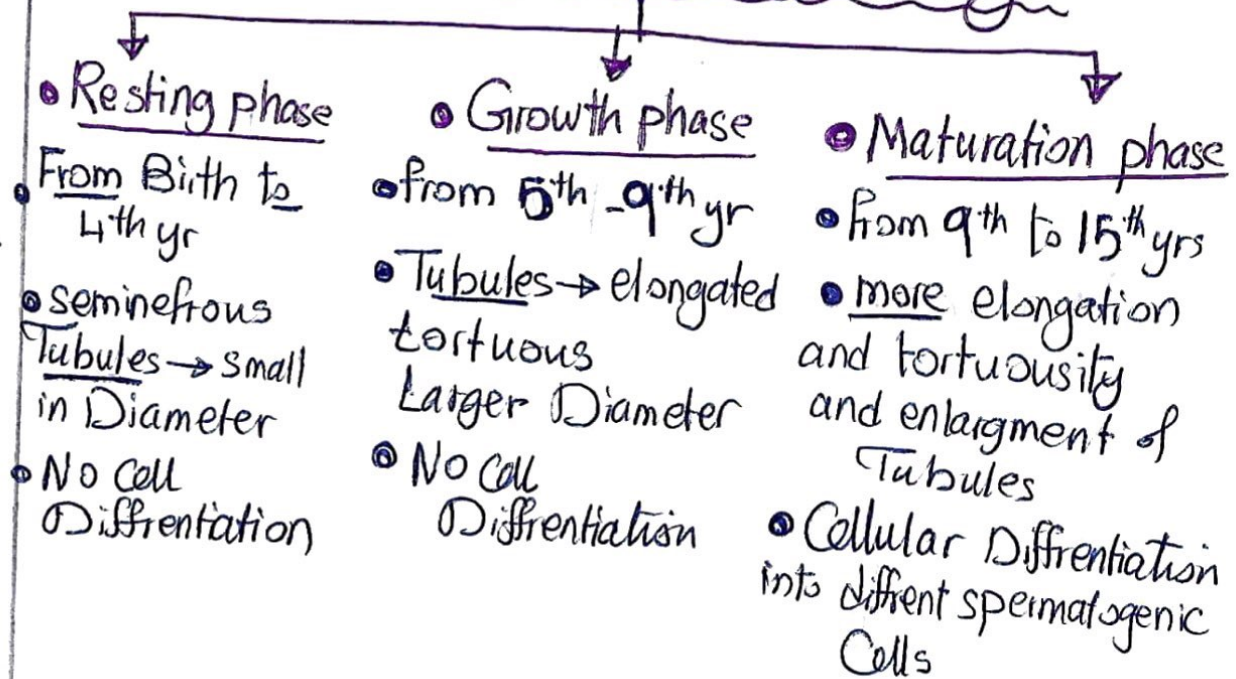
Under the effect of gonadal hormones associated e:

general Body growth + Skeletal maturation (3)
(adult growth spurt) under the effect of growth hormones

- The peak High velocity :- obtained 2 yrs after
The testicular enlargement

- The skeletal mass → Doubles Between 12th and 16th years of life

B Testicular Histology Changes :-



④ IV - Physiology of Androgens

A Formation of Androgens

• First step: Formation of Cholesterol
which is derived from the Low density lipoprotein or synthesized de novo in the Leydig cells from acetyl Coenzyme A

• Second step:
Transformation of Cholesterol into Pregnenolone → under the effect of the enzyme Cytochrome P450

• Third step:
Conversion of Pregnenolone into Testosterone through Intermediate products:
→ progesterone
→ 17-OH-progesterone
→ androstenedione

B Transport of Androgens :-

- Androgen → Transported in the Bloodstream By 3 ways :-
→ Bound to Albumin (54%)
→ Bound to Sex Hormones Binding Globulin (SHBG) (44%)
→ Circulate in the free form (2%)

C Transformations of Androgens :-

- Androgen transformed to different forms in order to exert their actions on the target tissue.

→ First and Main form :- Testosterone

- act Directly on some organs as
→ muscles
→ Testis
→ some areas in CNS

→ Second form:

Dihydrotestosterone

produced from testosterone By the enzyme 5- α -Reductase

- It's the active form in
→ prostate
→ Seminal Vesicles
→ Vas deferens
→ epididymis

→ 3rd form:

Oestradiol :- By aromatization of testosterone By aromatase enzyme - active form in CNS

D Biological effects of Androgen

① prenatal effect:-

- Androgens → essential for the development of
- Internal genital Ducts
- External genitalia
- descent of the testis

② postnatal Effects:-

1- effect on CNS:-

Sexual effect
Androgen Responsible for → Sexual Desire

Psychological
Androgen Response able for →
- aggressiveness
- Self Confidence
- mood elevation
- Intellectual skills

Endocrinal
- Androgen exert →
- Ve Feedback
inhibit Release of GnRH-LH
after their aromatization to estrogen

2- effect on the reproductive system ⑤

- effect on the Testis:-

- LH → stimulate Leydig cells to produce → androgens → essential For:-
 - initiation of spermatogenesis during puberty helped By (FSH)
- Once spermatogenesis is established
↓
testosterone only :- Required for maintenance.

- effect on the internal genital organs:-

- 3 forms of Androgens → testosterone
↓
Important for growth and development of the epididymis
↳ Dihydrotestosterone
↳ Oestradiol
- Vas deferens • Seminal vesicles • prostate
- Failure of androgen production → leads to:
 - Atrophy of these organs
 - Aspermia

⑥ effect on the external genital organs:

- Both \rightarrow testosterone
 \rightarrow Dihydrotestosterone
are Responsible for \rightarrow penile growth till puberty
- administration of androgens after Puberty \rightarrow Don't increase the penile size

\rightarrow 3- Metabolic effect of Androgen :-

a) Skeletal system:

- Testosterone is Responsible for $\uparrow\uparrow$ mass of the Muscles Through: Hypertrophy of the fibers
But without change in number of these fibers
- also $\uparrow\uparrow$ The growth of Larynx
 \rightarrow Deep voice
- Both Testosterone + estrogens \Rightarrow $\uparrow\uparrow$ Bone density and growth at the Beginning of puberty.

b) Skin :-

- Testosterone and Dihydrotestosterone \Rightarrow Stimulate Sebaceous glands \Rightarrow Acne
- They are necessary for the growth of Body hair : Beard, mustache, axilla, pubic.
- Scalp hair :- temporal recession may be Baldness in male & High 5- α Reductase activity

c) Hematological effect :

- Androgens \rightarrow Stimulate formation of RBCs
 \rightarrow $\uparrow\uparrow$ Synthesis of haemoglobin
- may be related to the levels of High Blood Lipids from the observation that the risk of Coronary atherosclerosis is twice high in men than women.

● Clinical important points

1- preclinical Detection of Puberty

- Puberty can be detected even before any clinical signs of it when there is \uparrow in LH and FSH

Considered initial central nervous system phase of puberty

2- Early clinical detection of Puberty:

\uparrow in Testicular volume is the earliest and most important clinical sign of puberty.

\uparrow From (1-3) mL Before puberty to (12-25) mL after puberty

3- pubertal Gynecomastia

- 75% of adolescence Boys \rightarrow experience transient and

tender gynecomastia \rightarrow Unilateral or Bilateral (2)

\rightarrow Related to: Conversion of \uparrow levels of testosterone into oestrogens By: aromatase enzyme

- Show: Spontaneous Curp

- The Resistant Cases \rightarrow treated By \leftarrow Tamoxifen
Clomiphene

- weight Reduction, surgical excision

Psychosexual Maturation

①

Introduction

- Sexuality :- like other personality components start to develop since Birth
- sex of individual is determined By :-
genetic sex, gonadal sex, psychological sex
- psychological sex depends on :-
- Biological Sex
- other factors :- parents - child Relationship learning - Social factors
- proper psychosexual maturation depends on :-
- healthy enough experience during each phase of the Development
- to allow healthy transition to following phase

59

1 Childhood Sexuality :-

A Autistic-Symbiotic phase :

1. The first 6 months of life
2. essential feature :- intimate Mother-Child Relationship
- help to give feeling of comfortable intimacy
- Trust of the mother → the basis for healthy sexual intimacy in adult life
- This healthy stable Relationship → lead to satisfaction of the infant primitive needs
- Conflicts at this stage → Failure in sexual intimacy or satisfaction later on
3. The Oral Zone :- The center for the pleasure and excitation of the infant
- The mouth → at this stage Acts as :-
organ of nourishment, exploration, physical psychological satisfaction.

B Separation-Individuation phase:

- 1- From 6 months till The 3rd year of life
- 2- The essential feature in mother-child Relationship is: Development of the Capacity of the child to separate and Return to the mother again
 - The Father: start to play important Role
 - Conflicts → Failure in sexual Separation and Closeness later on
- 3- The anal Zone: become area of interest at this stage
 - This anal eroticism may be reaction to toilet-training at this stage
Rather than → True eroticism
- 4- Gender identity:
 - The inner feeling of being male or female
 - Start to develop by age 2 yrs
 - Complete at age 4 yrs
 - Conflicts → gender identity disorders

C Oedipal phase:

- 1- This phase around The age 5 yrs
- 2- essential feature: the attraction of the child to the parent of the opposite sex with Jealousy and -ve feeling to same sex.
 - This Conflict in the relationship → Oedipus Complex in Boys
 - Electra Complex → in girls
- ↳ Normally → This ~~conflict~~ Complex Resolved with Further Development
- [• The strong Desire of the Boy toward his mother Transformed into desire toward a female-like his mother • Jealousy toward his father transformed into desire to identify with or become similar to his father]
- 3- The Genital Zone → Become area of interest
 - ↳ Boys concern about presence of penis
 - ↳ girls: concern about its absence

Go

- The end Result is:

- Development of Castration anxiety in Boys
(fears of loss of penis)

- penis envy: in girls (feeling of deprivation from the penis)

4 - Genital manipulation:

- start as an early primitive form of masturbation that is normal During their development

- The Parents -ve Reaction when they discover their children in these situations may be a Cause of Sexual disorders later on

- The Best way is to deviate the attention of the child toward Doing another non-Sexual act or play in very Calm attitude

[61]



Latency phase:

(3)

1- age 6 yrs to 12 yrs

2- essential feature → relatively calm sexual feelings and attitudes of the child with strong tendency for more social relations

- other authors observation that:-

The sexual interest at this stage ↑↑ Not ↓↓

- The apparent latency During this stage if it's really exists:-
may explain the parents prohibition of childhood genital manipulation
Rather than a True decline in sexual interest



Adulthood Sexuality:-



Adolescence phase:

1- Start from age 12 yr - 20 yr.

2- The essential feature is:- pubertal physical

1) and sexual changes.

- The Dramatic changes in this stage may lead to psychological instability.

Resolved in presence
of Healthy parent-
child relationship

may Continue

many adolescence problems

- ↳ behavioural disorders
- ↳ Depression
- ↳ antisocial activities
- ↳ homosexuality
- ↳ Sexual perversions

3- Sexual Desire ↑↑ markedly at this stage

- The boys differ from girls that their desire is More intense → For all possible sexual Partners and outlets
(Related to → Free testosterone level)
- The girls → more attracted to emotional aspects
and their desire Related mainly to :
Social, psychological effect and Learning

4- Masturbation : occur normally during stage.

- D.f : self-stimulation By the person to reach Orgasm
- Other names for it :
 - Autoeroticism
 - Auto Sexualism
 - Lone Sexuality

Secrete Sin ←
Onanism ←
- The act of masturbation :
 - most Males → masturbate By Rubbing
The shaft of penis
till → ejaculation occur
 - Females → By indirect stimulation of the
Clitoris through the Labia or the mons
Veneris
as the clitoris is oversensitive to touch
- Frequency of Masturbation :
 - varies w age, sex
 - almost all Boys → start masturbation
During adolescence
 - only 60% of girls → masturbate
 - The frequency is more in Unmarried than
married men

Facts - Fictions about masturbation

- imagine the magnitude of wrong ideas and fictions about Masturbation

- Study Result show that 16% of the medical students and medical residents felt that there was an etiological Relation Ship Between Masturbation and mental illness

① Fiction: masturbation may lead to physical and mental deterioration

Fact: No physical or mental health hazards except of :-

Some guilty feelings > depression

② Fiction: may lead to premature eJaculation

Fact: The cause is Not Related to Masturb But to → Mal-Conditioning to Rapid orgasms accompanying it as :- premarital sexual Relations → with Rapid orgasm → lead to same Results

③ Fiction: Masturbation in females → may lead to anatomical changes in genitalia Specially Clitoris

Fact: This Doesn't occur under Normal Conditions except ; very rare Cases in some females undergo Daily multiple clitoral stimulation By a vibrator.

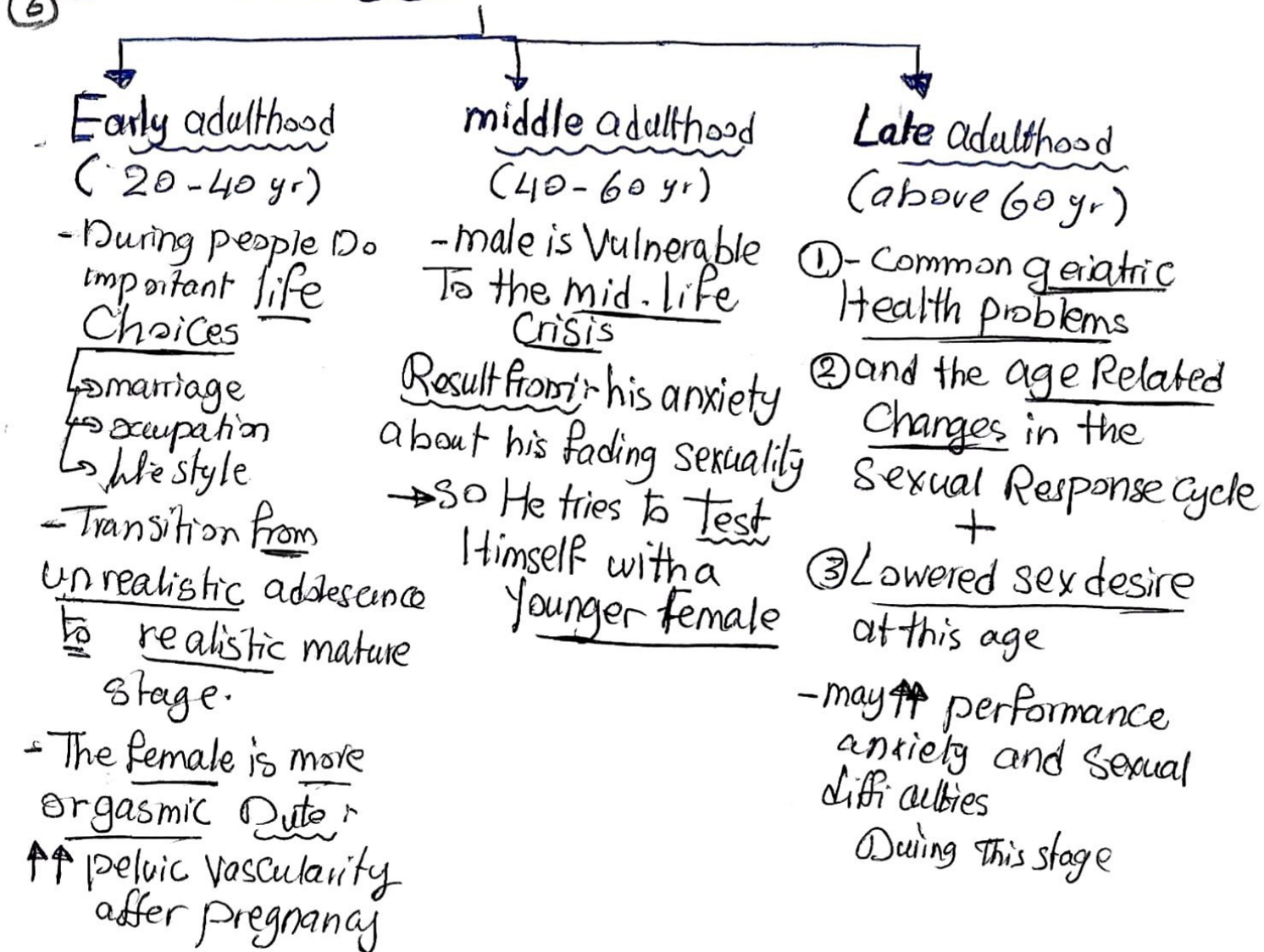
④ Fiction: Masturbations in Females → may lead to Coital anorgasmia after marriage

Fact: this Doesn't occur under Normal conditions
- if the husband is Cooperative, with good level of Communications Between parents
- She can Direct him to her preferred method of genital stimulation to reach the orgasm.

⑤ Fiction: Masturbation may be a sign of Psychological immaturity

Fact: No study shown that adult persons who masturbate are immature Compared to that who don't masturbate

B Maturity phase:



Intersex Disorders

①

- D.F.:- conditions ch. ch By disturbances in one or more of the
 - genetic sex
 - gonadal sex
 - phenotypic sex

- These disorders leads to → Ambiguous Genitalia of the newborn

↳ Female genitalia e variable degrees of Virilization

↳ male genitalia e variable degrees of Feminization

- Early precise Mgmt ⇒ essential for giving the parents and family The correct Decision about The sex of the infant

- early Diagnosis of some conditions:-
CAH → helps to save the life of infant

- The Risk of Malignancy associated e gonadal dysgenesis Must be assessed

- Classifications :

I Disorders e Ambiguous External Genitalia :-

A Female pseudohermaphrodite

- most common Cause
- Infant e genetic sex of the female (xx)
- The gonads are:- Ovaries e normal Mullerian Structures as (uterus)
- External genitalia:- show Varying degree of Virilization such as
 - Clitoral enlargement
 - labial pigmentation
 - Fusion in sever cases
- The Causes :-
 - excessive exposure of the infant to androgen During Pregnancy ⇒ which occur in 3 Conditions :

- a. Congenital adrenal Hyperplasia: CAH
- autosomal Recessive Disorder
 - defect in enzymes responsible for the conversion of cholesterol \rightarrow Cortisol (21-hydroxylase, 11-hydroxylase)
 - compensatory excessive production of adrenocorticotrophic hormone (ACTH)
- \rightarrow Excessive adrenal steroids \rightarrow Androstenedione
- \rightarrow Virilization

b. Female maternal intake of Virilizing Drugs

c. Maternal adrenal virilizing Tumors

- The assignment of the rearing sex:
 - Done early as possible
 - Early Cortisone supplementation to suppress the elevated ACTH \Rightarrow and the elevated adrenal androgen
- \rightarrow will correct the only abnormality in these ptn that is (virilized external genitalia)

- Cortisone therapy \Rightarrow will prevent the life-threatening adrenal crisis

- in Sever cases:

Surgical Correction (Clitoroplasty)
During infancy with preservation of the Dorsal neurovascular bundle.

(Vaginoplasty) \Rightarrow During puberty \Rightarrow For the cases of Labial fusion as early vaginoplasty \Rightarrow Scarring - Stenosis

B Male pseudohermaphrodite

- Infant Genetic sex \rightarrow male type (XY)
- The gonads \rightarrow testes.
- Mullerian Duct \rightarrow Regresses normally as the testis produce (MIS)
- external genitalia \rightarrow Varying degrees of Feminization
- Main Cause \rightarrow lack of Androgenization of the genital system \rightarrow occur in 3 conditions

a- Defective Androgen production :

- autosomal Recessive disorder.
- Defect in → One of the **5** enzymes of Testosterone production:

- 17- α hydroxylase
- 17- β hydroxysteroid dehydrogenase
- 17-20 desmolase
- 20-22 desmolase
- 3- β hydroxysteroid dehydrogenase

17- α , 20-22, 3- β → Common to Both Cortisol and testosterone Synthesis

↓
Their defect Result in → CAH + male Pseudohermaphrodite

17-20, 17- β → for Testosterone Synthesis only
Their defect Result in → male Pseudohermaphrodite

- Clinical presentation shows:-
 - variable Degrees of feminizations of external and internal organs

- The treatment depends on:- Replacement androgen & Cortisone (circled)

b- Defective Androgen Action :

(pseudovaginal penoscrotal hypospadias syndrome)

- Autosomal Recessive disorder
- Defect in enzyme 5- α -Reductase →

That convert testosterone → dihydrotestosterone

- variable degrees of Feminization of the external genitalia only which depends on :
Dihydrotestosterone in their development

- The internal organs → Normal (as they depend on testosterone)

- may be : Severe hypospadias + variable Fusion of the Scrotal folds

- Diagnosed By:

- ④ • $\uparrow\uparrow$ Testosterone/dihydrotestosterone Ratio
 ↳ after gonadotropin injection
- inability of the genital skin to convert testosterone \Rightarrow Dihydrotestosterone
- treatment depends on: Degree of Feminization of the external genitalia
- ↳ if only hypospadias \Rightarrow Surgery
 - ↳ if sever degree of Feminization \Rightarrow Early male to Female Sex reassignment Surgery (Created as female)

C - Defective Androgen Receptors

(Androgen Resistance syndromes, Testicular Feminization Syndrome)

- X-linked
- Defect in: androgen Receptors in tissue
- in its Complete form: (Complete Testicular Feminization)

Those ptns e male genetic sex (XY) \Rightarrow will have Female external genitalia

- The Mullerian Duct \Rightarrow will Regress
- ↳ D.t \rightarrow M.T.S secreted from the testis
- ↳ Vagina \rightarrow Short, ends in: Blind pouch
- No Uterus or Fallopian tubes
- The Baby: reared as: Female till puberty
 When parents bring him for medical advice Ducts try amenorrhea.

- The Breast:

will Develop w.t conversion of some amount of Testosterone \Rightarrow estrogens

- Axillary - pubic hair: - Abscent

- child reared as Female Because of: (No surgery or Hormone can create a functioning penis or change the female appearance of Body)

- The testes:

Excised w.t Risk of Malignancy

- The Receptor defects : maybe Incomplete with variable degrees of ambiguous genitalia as
 - enlarged clitoris
 - Labial fusion
 - Perineal hypospadias

which occur in Reifenstein Syndrome associated with Defective Spermatogenesis

- Other similar Syndromes of Incomplete androgen insensitivity :
 - Gilbert Syndrome
 - Lubs Syndrome
 - Rosewater Syndrome

- The Mildest Form of defective androgen Receptors is :-

Infertile male Syndrome

- Complete normal male
- defective spermatogenesis only
- 1/3 of infertility associated with azoospermia

69

- The Diagnosis : of androgen insensitivity is ⑤ quantitative or qualitative abnormal androgen Receptors (From fibroblast culture of genital skin)



True Hermaphrodite :-

- Genetic Sex → XX (70%)
→ XY (30%) or mosaic
- rarest Form of all intersex Disorders
- Ch. ch By : presence of Both male & female gonads in the same individual
→ maybe ovary in one side & testis other side
- present in varying degrees of :- Ambiguous genitalia
 - Hypospadias
 - undescended testis
 - Labial fusion
- The internal Ducts → will develop according to the gonads at the same side.

⑥ The Ovarian Component of the hermaphrodite gonads is Better Developed Than testicular Component

• At least 6 True hermaphrodites reared as females have been Reported to achieve Pregnancy

• most Cases of True hermaphroditism Better reared as Females @ → preservation of the ovarian tissue and Mullerian Structure if normal

D Mixed Gonadal Dysgenesis:

• Genetic Sex → $46 XY$
→ $45 XO / 46 XY$ karyotype.

• ch. ch By → Presence of testis on one side, Streak gonad on other side

• present By → Ambiguous genitalia in performing sex assignment

• The following Factors should be considered:-

1- Fertility should Not be considered as the :- gonads have NO germinal elements

2- half of these pts will be → Too Short

3- Inadequate virilization of the external genitalia will Require multiple complicated reconstructive operations → to change the sex into male sex

4- The Gonads → have extremely High rate of malignant changes



after all these considerations
[Better reared as Female after gonadal excision]

E Gonadal Agenesis :-

(Vanishing testis Syndrome) ^{انعدام الخصيتين}
 (Agonadia - rudimentary testis & -
 empty pelvis & - testicular regression &)

- Genetic sex \rightarrow 46 XY karyotype.
- Result from \rightarrow Loss of Vascular Supply of the testis During the Intrauterine descent

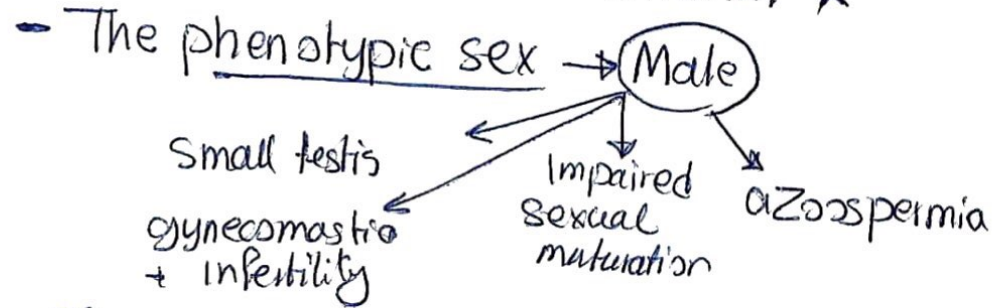
- lead to \rightarrow many Forms of abnormal genital organs
 \downarrow
 depend on the time of this regression

II Disorders with Male external genitalia

A KlineFelter & :-

- XXy syndrome
- ptn have (47 XXY) karyotype

- or other variations of additional X



B Sex Reversal Syndrome :-

- XX Syndrome
- 46 XX karyotype
- Phenotypic sex \rightarrow Male

\rightarrow D.t presence of DNA fragments of The testis determining Factor (TDF) on The short arm of the X-chromosome \rightarrow Transmitted to it From Y-chromosome

C XYY Syndrome :-

- 47 Xyy karyotype.
- Tall - abnormal spermatogenesis
- pustular acne - Criminal antisocial Behavior \rightarrow

explained By: intellectual dysfunction

- 8) - Those men have → normal behaviour and normal fertility

D Persistent Mullerian Duct Syndrome

- Result From: Failure of the Foetal testis to produce (MIS)
OR Failure of the Mullerian Duct to respond to it
So the Duct grows into Uterus or Fallopian Tubes
- The ptn → present During infancy e.g. inguinal Hernia in a completely normal male
This hernia may contain uterus or Fallopian T.

Treatment :-

The fact that the vas deferens may be adjacent to the Uterus and great care should be taken During Herniotomy to not injure it

E Micropenis :-

D.f :-

- ↳ normally → The penis start growth since the (12th-14th) weeks of gestation its length about :- 5 mm to reach the length 3.5 cm (± 0.8) at Birth
- it \uparrow in Length During this period By more Than 10 times
- The growth Slow Down → till puberty when it retains its High Rate again to Reach the adult length of about 13 cm (± 1.6)

↳ Micropenis

- Diminished penile size By at least 2.5 Standard Deviation Below mean size (when penile length < 2 cm at Birth)

Diagnosis according to Rules :-

- when suspected → suppress the pubic fat inside and stretch the penile shaft to outside then measure its Stretch length

• Aetiology :-

↳ Normally → The penis passes By 2 phases of intrauterine development :

Formation phase

- occur in First Trimester
- The penis undergoes → Complete formation depending on :-

Dihydrotestosterone Produced under the effect of : maternal chorionic gonadotrophins

Growth phase

- occur in: 2nd - 3rd trimesters
- penis undergoes : Complete growth
- Depending on: Dihydrotestosterone
- Produced under the effect of the foetal pituitary gonadotrophins

↳ Micropenis

- occur Due to : inadequate androgens During The growth phase

(after complete formation of penis)

- if this occur During the Formation phase Result in → Hypospadias, OR Ambiguous Genitalia, But Not micropenis

• pathology of this ↓↓ Androgens :- (9)

① Hypothalamic Disorders

- Kallmann's Syndrome
- Prader-Willi's

② Pituitary Disorders

- pituitary aplasia
- Isolated LH deficiency
- anencephaly
- growth Hormone deficiency

Testicular Disorders

- Primary Testicular failure

• Diagnosis :

Clinically

- penis : Reduced size
 - ↳ normal direction
 - ↳ normal Cavernous Tissue, Urethral meatus

- may associated e' small undescended Testis

- after puberty: Feminine Body, Body Hairs

Laboratory

- normal Karyotype 46 XY
- one of Hormonal anomalies
- MRI → should Done for any hypothalamic - pituitary defect

- erection → Normal
- ejaculation → Not occur

(10)

● Treatment:

- still controversial
- individualized for each case

- Mild Cases:

Not Required specially the erectile function is preserved.

- Moderate Cases:

Hormonal ~~at~~ = 25 mg/month of parenteral testosterone for 3 months only → to avoid its side effects on sexual growth

- Transdermal testosterone:

its Better start as early as possible for proper psychosexual development

and because: The 5- α Reductase activity and androgen Receptors are abundant in the genital organs of the infants compared to Adults
→ Response Better in younger age

- Early Exposure of the penis to: Androgens Before puberty → Reduce its Response to Androgens after puberty
↳ End Result: Small penis

- Surgical implantation → Few cases may benefit from it (Juvenile Sized penile Prosthesis)

- in Severe Cases → OR Resistant Hormonal therapy
↳ Early sex reassignment → should performed.

penile Agensis:-

↳ Regarded as a Cause of ambiguous genitalia

- Rare anomaly < 100 Cases in the world.

- Cause → unknown (Primary lack of development of the genital tubercle) No Endocrine disorders

- M: depend on Early Corrective Surgery For Sex reassignment toward → female with early testis Removal → to prevent virilization of the Brain